



Soil and Worms - Teacher's Notes

Willie the worm needs a new home

To replay the understanding that soil has living and non- living components and why it is an essential resource, the following activity "Willie the worm needs a new home", can be used.

The activity might be preceded by a visit to the school's worm farm or mulch heap to view working worms (and other decomposers) that live there and break down organic matter to enrich soil. If you are not familiar with worm farms, the layer under shredded newspaper often contains lots of worms.

The worksheet and pictures may be uploaded to a Smart Board or projector and the class can discuss possible answers before filling in their own worksheets.

This also provides an opportunity for students to create a puppet show or drama relating this story and its characters.

Students can take the parts of:

- Narrator
- Willie the worm
- The farmer
- The cow
- The wheat
- Willie's friends, the worms, the bacteria and the fungi

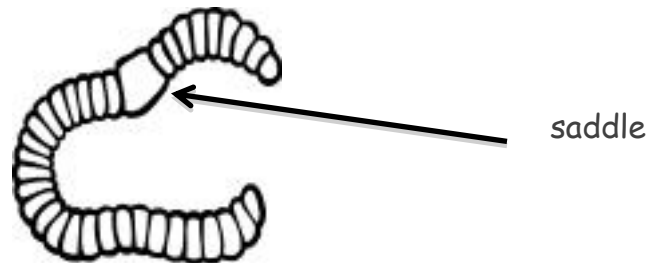
Worm information

Would you please ask students to only handle worms minimally as they are sensitive to heat from human's hands.





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The garden earthworm is a segmented worm. It has little hooks or chaetae on the underside of its segments that it uses to pull its way along. It moves forward in waves of contraction and extension along its body.

One end of the worm has sensitive tissue that reacts to light and heat. This is the shorter portion in front of the thick saddle. Worms move away from light. A bird has to be up early to catch a worm on the surface of the grass. At daybreak light drives them underground. If it rains heavily and their tunnels are filled with water you may also find them at the surface.

Worms are hermaphroditic being both male and female. They can fertilise each other and both lay eggs. (Perhaps our worm should be called Willie/Wilhemina?)

In soft earth it pushes its head forward through the soil, however if the soil is hard, it can also eat its way through. It leaves tunnels that allow air into the soil and water to penetrate easily. Plants depend on air and water reaching their roots. They depend on nutrients dissolved in water. Worm castings are a very valuable type of fertiliser.

Worm Farm Option

Using an old aquarium or other large transparent container, fill with thick layers of soil, shredded newspaper (visit the school office?) and vegetable waste (canteen?). It should be kept warm and damp, not wet.





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If the farm is placed inside a cardboard box or covered by a cloth, student will be able to remove these and see how the worms mix up the layers and make tunnels.

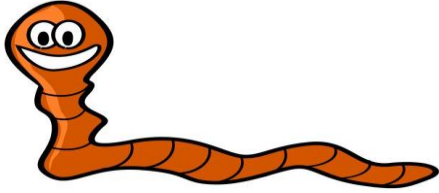


Worms digesting kitchen scraps, turning them into humus for the kitchen garden.

Only use vegetable waste in your worm farm as this reduces the chances of smell and flies.



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Willie the worm needs a new home

"There are too many worms in this place" said Willie.

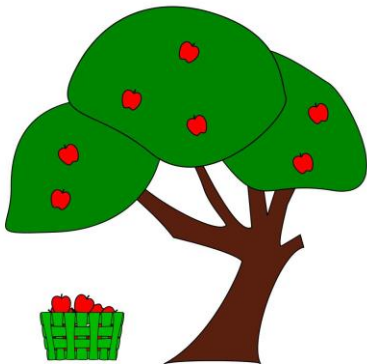
"I need to make a new home. I need some soil of my own".

"Rocks can you help me?" asked Willie.

"We can give you **gravel and sand**" said the rocks.



"Thank you" said Willie and he took away the **gravel** and the **sand**.



"Apple tree, can you help me?" asked Willie.

"I can give you **dead leaves and rotten fruit**" said the apple tree.

"Thank you" said Willie and he took away the **dead leaves** and **fruit**.



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"Sky, can you help me make a new home?" asked Willie.

"I can give you gentle drops of rain" said the sky.



"Thank you" said Willie and he took away the gentle drops of rain.

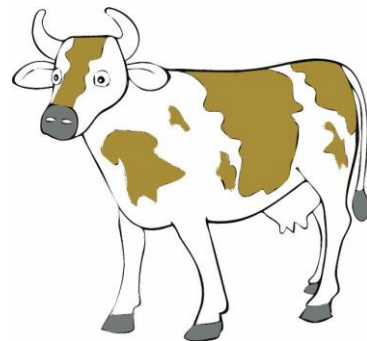
Willie mixed together the gravel and sand, the dead leaves and fruit and then added the rain.

Willie had made soil. It was lovely.

The farmer said "Come with your lovely soil and live on our farm".

"Yes, please come" mooed the cow. "Why?" asked Willie.

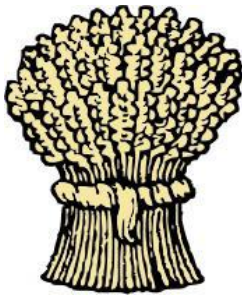
"Good soil grows good grass. Cows eat grass. Working worms improve soil" mooed the cow. "I eat grass and make milk for my calves and the farmer" mooed the cow.





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"Yes, please come" whispered his wheat. "Why?" asked Willie.



"Good soil has food for growing wheat. Working worms improve soil" whispered the wheat.



Soon other worms came to join him. (Willie also brought his friends the fungi and his buddies the bacteria. The farm was a wonderful place for worms). They ate tunnels through the soil and helped the plants and animals.

Draw Willie and the other worms in their soil.